Terrestrial Evidence of a Nuclear Catastrophe in Paleo-Indian Times*

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The Paleo-Indian occupation of North America, theoretically the point of entry of the first people in the Americas, is traditionally assumed to have occurred at about 12,000 yr B.P. This is inconsistent with older South American dates of around 32,000 yr B.P. and the similarity of the Paleo-Indian toolkit to Mousterian traditions that disappeared ~30,000 years ago.

Our research indicates that the entire Great Lakes region (and beyond) was subjected to particle bombardment and a catastrophic nuclear irradiation that produced secondary neutrons from cosmic ray interactions. The neutrons produced unusually large quantities of ^{239}Pu and altered the natural uranium abundance ratios (^{235}U/^{238}U) in artifacts and in other exposed materials including cherts, sediments, and the entire landscape. These neutrons necessarily transmuted residual nitrogen (^{14}N) in the dated charcoals to radiocarbon, thus explaining the anomalous dates.

We investigated a cluster of especially young dates for Paleo-Indian sites in the north-central area of North America that ranged from 160-3380 yr B.P. For example, at the Gainey site in Michigan a 2880 yr B.P. radiocarbon date was reported while the thermoluminescence date for that site is 12,400 yr B.P. Stratographic associations place Paleo-Indian occupations at depth in the prehistoric North American landscape, and cemented sediments on the artifacts show they were deposited before the formation of spodosols ended ~10,000 yr B.P.

Microscopic examination of chert artifacts revealed a high density of ~100μm diameter entrance wounds (~500/mm^2) and embedded particles, preferentially found on only one side of the artifact. A large concentration of micrometeorite-like material was found in the adjacent sediments. The nearly vertical direction of the tracks left by the particle impacts suggests they came from a distant source.

Various artifacts, cherts, sediments, and a control sample were sent to McMaster University Centre for Neutron Activation Analysis to determine ^{235}U and ^{238}U concentrations. All samples were found to have anomalous ^{235}U/^{238}U ratios. Additional samples were sent to Nuclear Technology Services, Inc. to determine ^{239}Pu concentrations. The artifacts contain far more ^{239}Pu than expected in nature. These results are summarized in the following table.

Site	Latitude	%^{235}U Depletion	^{239}Pu/^{238}U(ppb)
Control		<5	≡ 0.003
Baker	34.5°N	19±4	
Baker	34.5°N	17±4	
Alton	38.7°N	17±4	
Alton	38.7°N	30±8	
Taylor	39.1 °N	19±8	10±1
Butler	42.4°N	49±17	
Leavitt	42.4°N	42±8	
Gainey	42.6 °N	77±17	43±4
Gainey[a]	42.6 °N	b	~90
Zander	43.4°N	>65	

[a] Sediment [b] Enriched by 30% in ^{235}U

Additional evidence for a terrestrial irradiation have been found in marine sediments and radiocarbon age calibration data indicating events at ~41,000, 33,000, and 12,400 yr B.P. coincident with geomagnetic excursions. The ^{239}Pu data are consistent with an event at about 39,000 yr B.P. The most probable explanation is irradiation from a supernova in the northern sky, possibly associated with formation of the local bubble.

Footnotes and References

* *Mammoth Trumpet*, March, 2001 (in press).

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